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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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09/388,265 09/01/99 HO

J 82666-000100

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EXAMINER

J GEORG SEKA  
TOWNSEND AND TOWNSEND & CREW  
TWO EMBARCADERO CENTER  
EIGHTH FLOOR  
SAN FRANCISCO CA 94111-3834

VII, H

ART UNIT

PAPER NUMBER

2811

DATE MAILED:

01/04/01

**Please find below and/or attached an Office communication concerning this application or proceeding.**

**Commissioner of Patents and Trademarks**

# Office Action Summary

Application No.  
09/388,265

Applicant(s)

HO ET AL.

Examiner

HUNG VU

Group Art Unit  
2811



☒ Responsive to communication(s) filed on Jan 6, 2000

☐ This action is **FINAL**.

☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire 3 month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

## Disposition of Claims

☒ Claim(s) 8-27 is/are pending in the application.

Of the above, claim(s) \_\_\_\_\_ is/are withdrawn from consideration.

☐ Claim(s) \_\_\_\_\_ is/are allowed.

☒ Claim(s) 8-27 is/are rejected.

☐ Claim(s) \_\_\_\_\_ is/are objected to.

☐ Claims \_\_\_\_\_ are subject to restriction or election requirement.

## Application Papers

☐ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.

☐ The drawing(s) filed on \_\_\_\_\_ is/are objected to by the Examiner.

☐ The proposed drawing correction, filed on \_\_\_\_\_ is ☐ approved ☐ disapproved.

☐ The specification is objected to by the Examiner.

☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. § 119

☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

☐ All ☐ Some\* ☐ None of the CERTIFIED copies of the priority documents have been  
☐ received.

☐ received in Application No. (Series Code/Serial Number) \_\_\_\_\_

☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\*Certified copies not received: \_\_\_\_\_

☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

## Attachment(s)

☒ Notice of References Cited, PTO-892

☐ Information Disclosure Statement(s), PTO-1449, Paper No(s). \_\_\_\_\_

☐ Interview Summary, PTO-413

☐ Notice of Draftsperson's Patent Drawing Review, PTO-948

☐ Notice of Informal Patent Application, PTO-152

--- SEE OFFICE ACTION ON THE FOLLOWING PAGES ---

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## **DETAILED ACTION**

### ***Information Disclosure Statement***

1. The listing of references in the specification should be submitted to the examiner for consideration.

### ***Claim Objections***

2. Claims 9-15 and 17-27 are objected to because of the following informalities: In claims 9-15 and 17-27, line 1, "An" should be changed to "The", for clarity. Appropriate correction is required.

### ***Claim Rejections - 35 USC § 112***

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 8-27 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claims 8 and 16, the phrase "An ohmic contact to a semiconductor" is unclear as to whether it recites any specific structure or device.

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***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 8, 9, 16, 19, and 23 are rejected under 35 U.S.C. 102(b) as being anticipated by Hartnagel et al. (PN 4,119,993).

Hartnagel et al. discloses an ohmic contact to a semiconductor which is formed on a semiconductor material (GaAs), including a mixture of p-type semiconductor oxide and metal ( $\text{Al}_2\text{O}_3$ , silver) (Note col. 2, line 18 to col. 3, line 7);

wherein the p-type semiconductor oxide includes a single oxide. Note Figure of Hartnagel et al.

5. Claims 8-13 and 15-27 are rejected under 35 U.S.C. 102(a) as being anticipated by Nitta (PN 5,798,537).

Nitta discloses an ohmic contact to a semiconductor which is formed on a semiconductor material (104), including a mixture of p-type semiconductor oxide and metal (105);

wherein the p-type semiconductor oxide includes a single oxide;

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wherein the p-type semiconductor oxide includes a mixture of various oxides (ITO, SnO<sub>2</sub>, Ti, Al, Ni);

wherein the semiconductor material is p-type Al<sub>x</sub>Ga<sub>y</sub>In<sub>z</sub>N, and 0<x,y,z<1, and x+y+z=1;

wherein the p-type semiconductor oxide is one of SnO<sub>2</sub>;

wherein the semiconductor material is p-type GaN;

a transparent conductive film (ITO). Note Figures 2-4 of Nitta

Note that in claim 11 and 22, it is inherent that a solid solution layer is being formed as result of the semiconductor oxide.

6. Claims 8-26 are rejected under 35 U.S.C. 102(e) as being anticipated by Nakamura et al. (PN 5,563,422).

Nakamura et al. discloses an ohmic contact to a semiconductor which is formed on a semiconductor material (12), including a mixture of p-type semiconductor oxide and metal (411,15);

wherein the p-type semiconductor oxide includes a single oxide;

wherein the p-type semiconductor oxide includes a mixture of various oxides;

wherein the semiconductor material is p-type Al<sub>x</sub>Ga<sub>y</sub>In<sub>z</sub>N, and 0<x,y,z<1, and x+y+z=1;

wherein the semiconductor material is p-type GaN;

a transparent conductive film. Note Figures 2-4 of Nakamura et al.

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Note that in claim 11 and 22, it is inherent that a solid solution layer is being formed as result of the semiconductor oxide. Also note that the semiconductor oxide is a reaction between layers 411 and 15.

### *Conclusion*

7. Papers related to this application may be submitted to Technology Center (TC) 2800 by facsimile transmission. Papers should be faxed to TC 2800 via the TC 2800 Fax center located in Crystal Plaza 4, room 4-C23. The faxing of such papers must conform with the notice published in the Official Gazette, 1096 OG 30 (November 15, 1989). The Group 2811 Fax Center number is (703) 308-7722 and 308-7724. The Group 2811 Fax Center is to be used only for papers related to Group 2811 applications.

Any inquiry concerning this communication or any earlier communication from the Examiner should be directed to **Hung Vu** whose telephone number is (703) 308-4079. The Examiner is in the Office generally between the hours of 7:00 AM to 5:30 PM (Eastern Standard Time) Monday through Thursday.

Any inquiry of a general nature or relating to the status of this application should be directed to the **Technology Center Receptionists** whose telephone number is (703) 308-0956.

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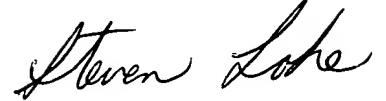
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Vu

December 30, 2000

Steven Loke  
Primary Examiner

A handwritten signature in cursive script that reads "Steven Loke". The signature is written in black ink and is positioned below the printed name and title.